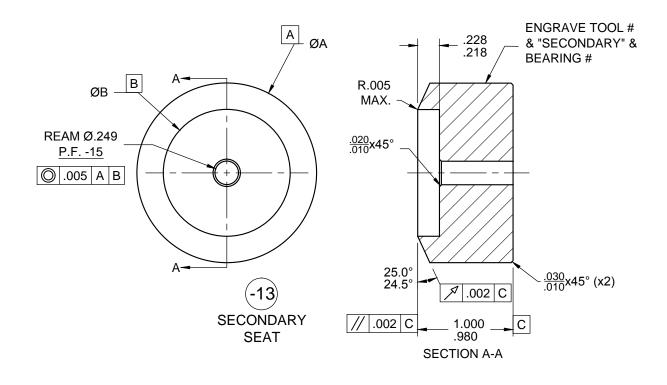


TOOL # KST-BACB10FB	ØA +.000 002	PIN TYPE		MATERIA	L
KSTFB04	.248	-	1018	RND. BAR	Ø5/16 x 5/8
KSTFB05	.310	Ш	1018	RND. BAR	Ø3/8 x 5/8
KSTFB05-SP	.310	Ш	1018	RND. BAR	Ø3/8 x 5/8
KSTFB06	.373	Ш	1018	RND. BAR	Ø3/8 x 5/8
KSTFB07	.435	Ш	1018	RND. BAR	Ø1/2 x 5/8
KSTFB08	.498	Ш	1018	RND. BAR	Ø1/2 x 5/8
KSTFB09	.560	Ш	1018	RND. BAR	Ø5/8 x 5/8
KSTFB10	.623	Ш	1018	RND. BAR	Ø5/8 x 5/8

NOTES

1. BREAK ALL SHARP CORNERS (.015/.03).

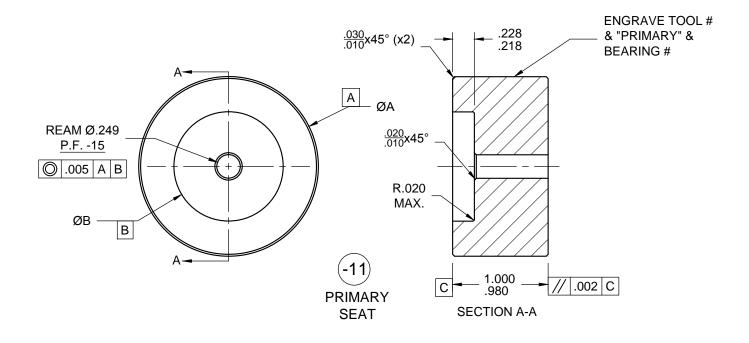
® RED BARI	
TILE KSTFB SERIES DP TRI-I FOR BACB10F	ROLLER SWAGING TOOLS  B BEARINGS
<sup>owg no.</sup> (T□□L#) -15 [	_OCATING PIN 5
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY: PERRITT APPROVED
TOLERANCES ON: DECIMALS .XXX ± .005 FRACTIONS ± 1/32	HEAT TREAT
.XX ± .01 ANGLES ±.5°	FINISH BLACK DXIDE
UNLESS OTHERWISE SPECIFIED	USED ON BEARING
1. BREAK ALL SHARP EDGES	SEE Pg. 1
.015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE NTS DATE 1-3	31-08 SHEET 9 of 9



TOOL # KST-BACB10FB	ØA +.000 030	ØB +.000 005	MATERIAL			
KSTFB04	1.062	.617	4140 Q&T	RND. BAR	Ø1-1/8x 1-1/8	
KSTFB05	1.125	.681	4140 Q&T	RND. BAR	Ø1-1/4 x 1-1/8	
KSTFB05-SP	.920	.681	4140 Q&T	RND. BAR	Ø1 x 1-1/8	
KSTFB06	1.250	.775	4140 Q&T	RND. BAR	Ø1-1/4 x 1-1/8	
KSTFB07	1.375	.900	4140 Q&T	RND. BAR	Ø1-3/8 x 1-1/8	
KSTFB08	1.500	.968	4140 Q&T	RND. BAR	Ø1-1/2 x 1-1/8	
KSTFB09	1.625	1.062	4140 Q&T	RND. BAR	Ø1-5/8 x 1-1/8	
KSTFB10	1.750	1.187	4140 Q&T	RND. BAR	Ø1-3/4x 1-1/8	

## NOTES 1. BREAK ALL SHARP CORNERS (.015/.03).

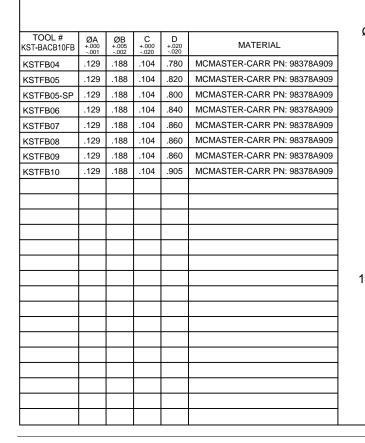
®RED BAF	RN MACHINE
TITLE KSTFB SERIES DP TRI FOR BACB1	-ROLLER SWAGING TOOLS OFB BEARINGS
DWG NO. (T□□L:#) -13 SE	CONDARY SEAT 5
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:	DRAWN BY: PERRITT APPROVED
DECIMALS .XXX ± .005 FRACTIONS ± 1/32 .XX ± .01 ANGLES ± .5° .X ± .1	HEAT TREAT FINISH BLACK DXIDE
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES	USED ON BEARING SEE Pg. 1
.015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	lourer
SCALE NTS DATE 1-	-31-08   SHEET 8 of 9

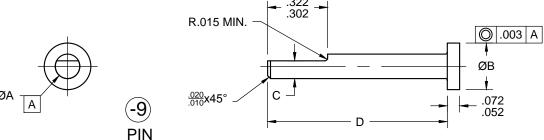


TOOL # KST-BACB10FB	ØA +.000 030	ØB +.000 005	MATERIAL				
KSTFB04	1.125	.572	4140 Q&T	RND. BAR	Ø1-1/8 x 1-1/8		
KSTFB05	1.125	.600	4140 Q&T	RND. BAR	Ø1-1/4 x 1-1/8		
KSTFB05-SP	.920	.600	4140 Q&T	RND. BAR	Ø1x 1-1/8		
KSTFB06	1.250	.720	4140 Q&T	RND. BAR	Ø1-1/4 x 1-1/8		
KSTFB07	1.375	.845	4140 Q&T	RND. BAR	Ø1-3/8 x 1-1/8		
KSTFB08	1.500	.886	4140 Q&T	RND. BAR	Ø1-1/2 x 1-1/8		
KSTFB09	1.625	.982	4140 Q&T	RND. BAR	Ø1-5/8 x 1-1/8		
KSTFB10	1.750	1.106	4140 Q&T	RND. BAR	Ø1-3/4x 1-1/8		

<u>NOTES</u>
1. BREAK ALL SHARP CORNERS (.015/.03).

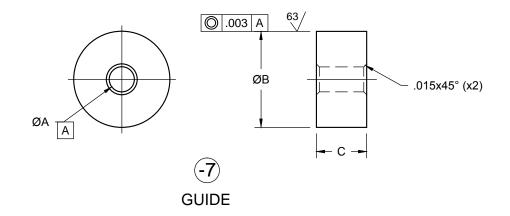
RED BARN	N MACHINE							
TITLE KSTFB SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACBIOFB BEARINGS								
DWG NO. (TDDL#) -11 P	RIMARY SEAT 5							
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY: PERRITT APPROVED							
TOLERANCES ON:   DECIMALS     XXX ± .005   FRACTIONS ± 1/32     XX + .01   ANGLES ±.5°	HEAT FINISH BLACK DXIDE							
UNLESS OTHERWISE SPECIFIED	USED ON BEARING							
1. BREAK ALL SHARP EDGES SEE Pg. 1								
2. DIMENSIONAL LIMITS APPLY AFTER PLATING								
SCALE NTS DATE 1-3	1-08   SHEET 7 of 9							





<u>NOTES</u>
1. BREAK ALL SHARP CORNERS (.015/.03).

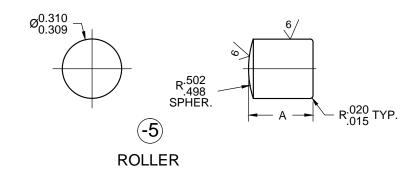
® RED	BARN	I MA	CHI	١E			
KSTFB SERIES FD	DP TRI-R R BACB10F1			TOO	LS		
DWG NO (T	][L#)	9 F	⊃IN		C 3		
UNLESS OTHERWISE DIMENSIONS ARE IN		DRAWN BY:	PERR	RITT			
TOLERANCES ON: DECIMALS	1	APPROVED					
.XXX ± .005 FRACTI	ONS ± 1/32	HEAT TREAT					
	GLES ±.5°	FINISH SPEC	BLACK	□XIDE			
UNLESS OTHERWISE S	SPECIFIED	US	SED ON BEAR	RING			
1. BREAK ALL SHARP EDGES SEE Pg. 1							
.015 x 45° PR .015 2. DIMENSIONAL LIMITS APPLY A							
scale NTS	DATE 1-3	1-08	SHEET (	of	9		



TOOL # KST-BACB10FB	ØA +.001 001	ØB +.000 002	C +.000 010	MATERIA	AL
KSTFB04	.131	.248	.160	BRONZE RND. BAR	Ø1/4 x 3/8
KSTFB05	.131	.310	.160	BRONZE RND. BAR	Ø3/8 x 3/8
KSTFB05-SP	.131	.310	.160	BRONZE RND. BAR	Ø3/8 x 3/8
KSTFB06	.131	.373	.210	BRONZE RND. BAR	Ø3/8 x 3/8
KSTFB07	.131	.435	.240	BRONZE RND. BAR	Ø1/2 x 3/8
KSTFB08	.131	.498	.240	BRONZE RND. BAR	Ø1/2 x 3/8
KSTFB09	.131	.560	.270	BRONZE RND. BAR	Ø5/8 x 1/2
KSTFB10	.131	.623	.310	BRONZE RND. BAR	Ø5/8 x 1/2

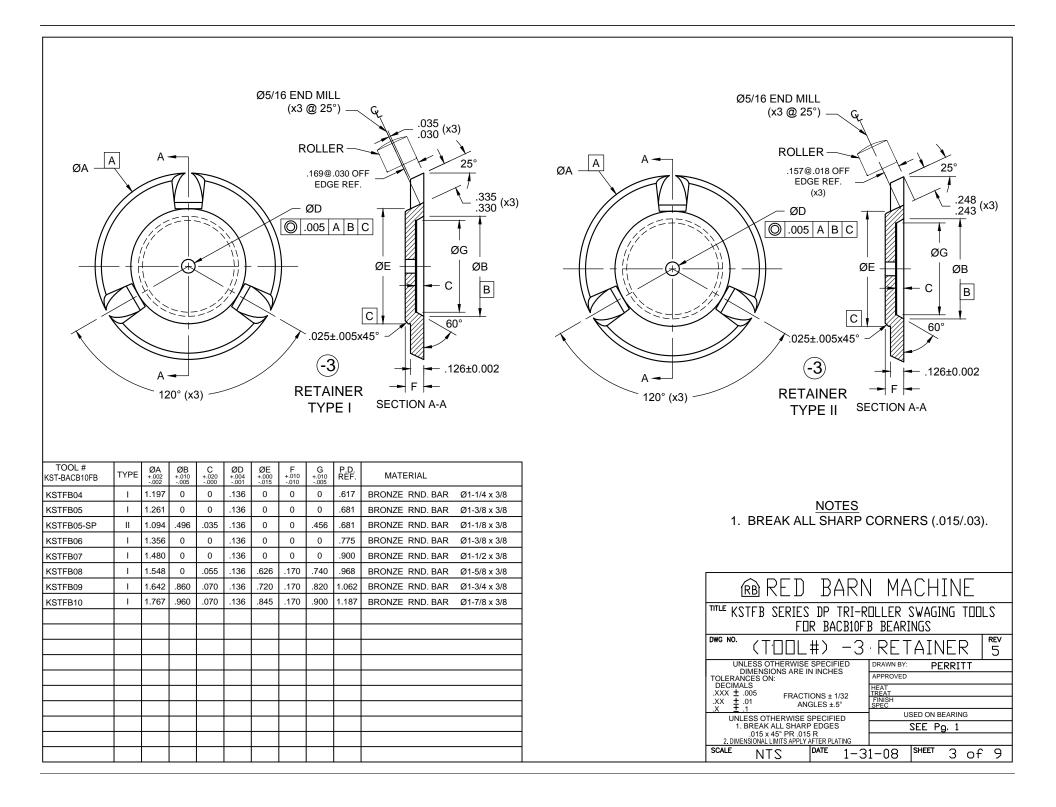
<u>NOTES</u>
1. BREAK ALL SHARP CORNERS (.015/.03).

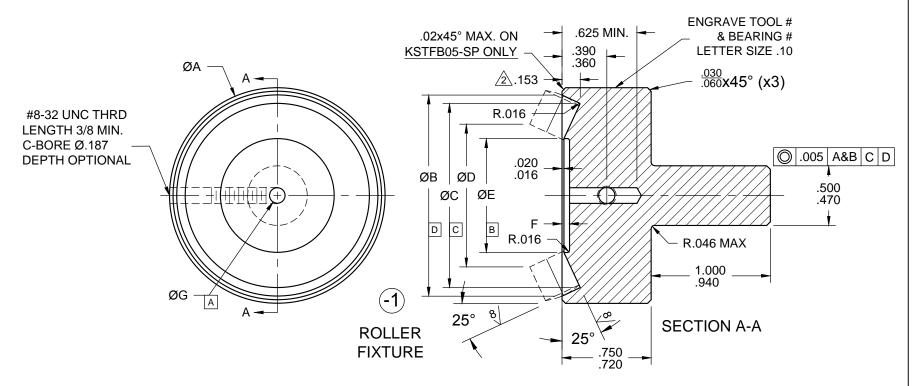
RED BAF	RN MACHINE
	RI-ROLLER SWAGING TOOLS BIOFB BEARINGS
DWC NO	-7 GUIDE 5
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	D DRAWN BY: PERRITT
TOLERANCES ON:	APPROVED
DECIMALS  .XXX ± .005  FRACTIONS ± 1/32	HEAT TREAT
.XX ± .01 ANGLES ±.5°	FINISH SPEC
UNLESS OTHERWISE SPECIFIED	USED ON BEARING
1. BREAK ALL SHARP EDGES	SEE Pg. 1
.015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	IG .
SCALE NTS DATE 1	I-31-08 SHEET 5 of 9



TOOL # KST-BACB10FB	A +.001 001		MATERIAL	
KSTFB04	.335	.310 MINUS	GAUGE PIN	MSC#89031009
KSTFB05	.335	.310 MINUS	GAUGE PIN	MSC#89031009
KSTFB05-SP	.251	.310 MINUS	GAUGE PIN	MSC#89031009
KSTFB06	.335	.310 MINUS	GAUGE PIN	MSC#89031009
KSTFB07	.335	.310 MINUS	GAUGE PIN	MSC#89031009
KSTFB08	.335	.310 MINUS	GAUGE PIN	MSC#89031009
KSTFB09	.335	.310 MINUS	GAUGE PIN	MSC#89031009
KSTFB10	.335	.310 MINUS	GAUGE PIN	MSC#89031009

® RED	BARN	I MA	CHIN	Ε
KSTFB SERIES FF	DP TRI-RI IR BACB10FI			TOOLS
DWG NO.				REV
( ∐∐L#)	-5 ROL	LEK 1	(QIY, :	3)   5
UNLESS OTHERWISE DIMENSIONS ARE I		DRAWN BY:	PERRI	TT
TOLERANCES ON:	IN INCHES	APPROVED		
DECIMALS .XXX ± .005	IONS ± 1/32	HEAT TREAT		
	GLES ±.5°	FINISH SPEC		
UNLESS OTHERWISE	SPECIFIED	US	SED ON BEARIN	lG
1. BREAK ALL SHAR	PEDGES	:	SEE Pg. 1	
.015 x 45° PR .01 2. DIMENSIONAL LIMITS APPLY				
SCALE NTS	DATE 1-3	1-08	SHEET 4	of 9





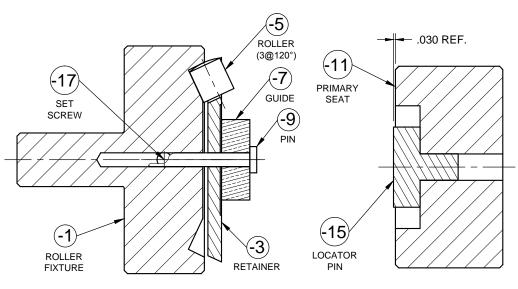
TOOL # KST-BACB10FB	ØA +.000 020	ØB +.008 000	ØC +.008 000	ØD P.D. REF.	ØE +.008 000	F +.030 000	ØG +.000 001		MATER	IAL
KSTFB04	1.375	1.110	.963	.617	.335	0	.131	0-1	DRILL ROD	Ø1-3/8 x 1-7/8
KSTFB05	1.375	1.174	1.027	.681	.420	0	.131	0-1	DRILL ROD	Ø1-3/8 x 1-7/8
KSTFB05-SP	1.160	1.022	.875	.681	.373	.041	.131	0-1	DRILL ROD	Ø1-1/4 x 1-7/8
KSTFB06	1.500	1.268	1.121	.775	.513	0	.131	0-1	DRILL ROD	Ø1-1/2 x 1-7/8
KSTFB07	1.625	1.393	1.246	.900	.638	0	.131	0-1	DRILL ROD	Ø1-5/8 x 1-7/8
KSTFB08	1.625	1.461	1.314	.968	.706	.040	.131	0-1	DRILL ROD	Ø1-5/8 x 1-7/8
KSTFB09	1.750	1.555	1.408	1.062	.800	.040	.131	0-1	DRILL ROD	Ø1-3/4 x 1-7/8
KSTFB10	1.875	1.680	1.533	1.187	.925	.040	.131	0-1	DRILL ROD	Ø1-7/8 x 1-7/8

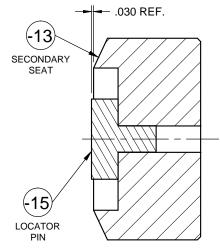
## **NOTES**

- 1. BREAK ALL SHARP CORNERS (.015/.03).
- DIMENSION TO BOTTOM OF R.016=.153; DIMENSION TO SHARP CORNER=.158.
- 3. -1 BEARING RACE SUFACES MUST HAVE SMOOTH APPEARANCE, FREE FROM MACHINING MARKS AND GROOVES.
- 4. <u>DO FIRST ARTICLE INSPECTION</u> BEFORE HEAT TREATING.

® RED BAR	N MACHINE
FOR BACB101	ROLLER SWAGING TOOLS  BEARINGS
DWG NO. (T□□L#) -1 R□	L:LER FIXTURE 5
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY: PERRITT
TOLERANCES ON:	APPROVED
DECIMALS  XXX ± .005  FRACTIONS 1.4/22	HEAT RC 55-60
.XX ± .01 PRACTIONS ± 1/32	FINISH BLACK DXIDE
UNLESS OTHERWISE SPECIFIED	USED ON BEARING
1. BREAK ALL SHARP EDGES	SEE Pg. 1
.015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE NTS DATE 1-3	31-08 SHEET 2 of 9

Т		REVISIONS									
	REV	DESCRIPTION	DATE	INITIAL	APPROVED						
	1	ADDED NOTE TO $-1$ BODY TO INSPECT BEFORE HEAT TREATING, ALSO CHANGED TOL., OF $-1$ ROLLER FIXTURE'S $\phi B$ , $\phi C$ , & $\phi E$ FROM $+.002$ $000$ .	2/11/08	WP	DW						
	2	ADDED TOOLS FB06 & FB07. DELETED -13 "08" DIMENSION AND ASSOCIATED 25" ANGLE, ALSO DELETED -15 TYPE II PIN.	4/18/08	₩P	DW						
	3	CHANGED $-15$ LOCATING PIN TOLERANCE FROM 0.2480-0.2475 TO 0.250 P.F.; CHANGED $-11$ & $-13$ FROM 0.247-0.246 TO REAM 0.249.	4/25/08	WP	G.E.						
	4	ADDED TOOLS #'S KSTFB05, KSTFB08, KSTFB09, KSTFB10. CHANGED $-13$ C DIMENSION TO $-13$ B. REWORKED ALL OF $-1$ DIMENSIONS TO ALLOW FOR PROPER DEPTH. ALSO CHANGED $-5$ RADUIS FROM .005 $-$ .010 TO .015 $-$ .020; $-9$ PIN RADUIS FROM .015 MAX. TO .015 MIN.; & $-7$ SLEEVE TO $-7$ GUIDE.	6-26-08	WP	DW						
	5	ADDED NEW TOOL KSTFB05-SP, AND CREATED A RETAINER $-3$ TYPE II TO ACCOMMODATE THE SP (SPECIAL, SMALL SIZE FOR CLEARANCE).	8/22/08	WP	RW						





BEARINGS & TOOLS COVERED							
BEARING #	TOOL#						
BACB10FB04	KSTFB04						
BACB10FB05	KSTFB05 KSTFB05-SP						
BACB10FB05							
BACB10FB06	KSTFB06						
BACB10FB07	KSTFB07						
BACB10FB08	KSTFB08						
BACB10FB09	KSTFB09						
BACB10FB10	KSTFB10						
	The state of the s						

## NOTES

- 1. -5 ROLLERS MUST TURN FREELY IN -3 RETAINER POCKETS.
- 2. -5 ROLLERS & -3 RETAINER MUST TURN FREELY WHEN TOOL IS COMPLETELY ASSEMBLED.
- 3. FLAT END OF ROLLERS MUST FACE TOWARDS THE CENTER OF THE TOOL WHEN ASSEMBLED.

QTY	B/O	PART#	QTY	DESCRIPTION	B/O INFORMATION OR SPECIFICATIONS	Pg.	
		-1	1	ROLLER FIXTURE	SEE CHART	2	DWG
		-3	1	RETAINER	SEE CHART	3	]""
		-5	3	ROLLER	SEE CHART	4	
		-7	1	GUIDE	SEE CHART	5	TOI
		-9	1	PIN	SEE CHART	6	.X>
		-11	1	PRIMARY SEAT	SEE CHART	7	.X> .X
		-13	1	SECONDARY SEAT	SEE CHART	8	]
		-15	2	LOCATING PIN	SEE CHART	9	
	B/O	-17	1	SOCKET HEAD SET SCREW	#8-32 x 1/4	N/S	SCA

## ® RED BARN MACHINE

TITLE KSTFB SERIES DP TRI-ROLLER SWAGING TOOLS
FOR BACB10FB BEARINGS

WG NO. (SEE TOOL# ABOVE); ASSEMBLY 5

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
DECIMALS
.XXX ± .005 FRACTIONS ± 1/32
.XX ± .01 ANGLES ± .5°
.X ± .1

UNLESS OTHERWISE SPECIFIED
1. BREAK ALL SHARP EDGES
.015 x 45° PR .015 R

APPROVED
HEAT LISTED PER ITEM
FINISH LISTED PER ITEM
USED ON BEARING
SEE ABDVE

2. DIMENSIONAL LIMITS APPLY AFTER PLATING CALE NTS DATE 1-31-08 SHEET 1 of 9

	REVISIONS			
REV	DESCRIPTION	DATE	INITIAL	APPR
1	<del></del>	-	-	-

						10		~\	ノ		)		® RED BARN MACHIN	IE
AS: Q1	SY ASS	Y Y B/	O PART#	UNIT QTY	DE	SCRIPTION	1			MAT.	B/O INFORMATION OR SPECIFICATIONS	Pg.		
			-1	1	RND	_		X	•	6061	Ø8-1/4 x 3-7/8	2	DWG NO	RE
						17		•					UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS	TT
							•						DECIMALS	iL
	ASS			1		· · · · · · · · · · · · · · · · · · ·							1. BREAK ALL SHARP EDGES 015 x 45° PR 015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	of

	REVISIONS									
REV	DESCRIPTION	DATE	APPROVED							

NOT APPROVED FOR PRODUCTION

		PART			QTY	DESCRIPTION				
			-1	ı	1					
		DRAWN BY: PERRITT			— \ Г		$D \wedge D M$	$\Lambda \Lambda \Lambda \cap$	LITN	$\overline{\Box}$
		CHECKED HEAT_		( <u>RB</u>	1 [2	くヒリ	RAKIN	MAL	$\Box\Box\Box$	1
		TREAT FINISH SPEC		TITLE						
[	USED ON MODEL	UNLESS OTHERWISE SPECIFIE DIMENSIONS ARE IN INCHES	D							
	?	TOLERANCES ON: DECIMALS .XXX ± .005 EDACTIONS + 1						-		
ł		XX ± .005 FRACTIONS ± 1 .XX ± .01 ANGLES ±.6		DWG 1	NO.		PART	#		REV.
f		UNLESS OTHERWISE SPECIFIED  1. BREAK ALL SHARP EDGES	)				1 1 11 \ 1	11		
		.015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	3	SCALE		NTS	DATE 1-28-0	06   <sup>sheet</sup> :	1 of	1

